

# ABSTRACT

## VOLTAGE BOOSTER CONVERTER

Voltage booster converter comprising:

- a pair of input terminals A and B for connecting a DC input voltage  $V_{in}$  between these two terminals;

- a pair  $P_0$  of switches SB, SH in series connected by the switch SB to the input terminal B, the input terminal A being connected across an input inductor  $L_{in}$  to the connection point between the two switches SB and SH in series, each switch SB, SH comprising a control input so as to be placed simultaneously, one in an on state the other in an isolated state;

- a pair of output terminals C and D, for powering, by an output voltage  $V_{out}$ , a load  $R_{out}$ , the output terminal D being connected to the input terminal B;

- K other additional pairs  $P_1, P_2, \dots, P_i, \dots, P_{K-1}, P_K$  of switches in series between the output terminal C and the free side of the switch SH with  $i = 1, 2, \dots, K-1, K$ , the two switches of one and the same additional pair  $P_i$  being connected across an energy recovery inductor  $L_{r1}$ ;

- K input groups,  $G_{in1}, G_{in2}, \dots, G_{in_i}, \dots, G_{in_{K-1}}, G_{in_K}$ , of  $N_i$  capacitors C of like value each in series, with  $i = 1, 2, \dots, K-1, K$  and  $N_i = i$ ;

- K output groups,  $G_{out1}, G_{out2}, \dots, G_{out_i}, \dots, G_{out_{K-1}}, G_{out_K}$ , of  $M_i$  capacitors C of like value each in series, with  $i = 1, 2, \dots, K$  and  $M_i = (K+1) - i$ .

The switches of these other K additional pairs are controlled simultaneously by the first and second complementary control signals.

Applications: compact voltage booster converters of high efficiency.

Figure: 2